

## APPENDIX 1 - HOW DO YOU CALCULATE JOBS? A COMPARISON

The commonest way we have seen this done is in "new jobs-for-a-year per £million spent" (or job-years per £million)

So for example Forbes, El-Haram et al 2012 paper "Forecasting the number of jobs created through construction" examines a number of studies, including the use of the Labour Forecasting Tool developed for the Construction Industry Training Board. It concludes that while a figure of 13.3 jobs per £million had been used (for example by Scottish Enterprise) based on an industry-wide average, looking at outcomes down the line a figure of 8.5 jobs per £million was more realistic.

The NEF Green Stimulus paper which informs our own argument above, includes figures which would generate about 9 jobs per £million:

9 million homes done in 4 years by average of 295,000 workers = 7.5 homes per worker per year.

If the average cost of the energy measures is £15,000 (based on limited measures to achieve EPC level C, then that means each worker "costs" (or installs/creates)  $7.5 \times £15k = £112.5k$  each year.

In which case £1million gives you just under 9 "job-years"

We have chosen to reduce the "productivity" slightly above (to 7 homes per worker per year) to reflect the more labour-intensive package of work that we would propose. This gives us 9.5 job-years per £million.

Another way is knowledge of how long it takes to do a particular job. This is only possible where the nature of the work is broadly consistent and builders and practitioners can use their experience to gauge output. Thus for "deep" retrofit, where a house may be taken apart and put back together, we have consistent figures suggesting the optimum approach is a team of 4 doing an average of one home every 6 months. I have had this approximate figure from Scots retrofit architect Sarah Lewis (speaking at the PassivHaus conference 2020), John Palmer LETI member and Passivhaus Trust research & policy director, and Malcolm McMahon at the Green Register.

That means one worker can complete on average 0.5 retrofit homes. The figure reflects both the labour intensity of the task, and the difficulty of "rushing" it. With these retrofits having typically come in at around £75,000 a property over the last decade, that gives a "cost" of £37,500 a year per job-year, or 27 job years per £million.

We have chosen to reduce the average spend to £50,000 per home - we believe this will allow an effective whole-house intervention, once we have the process running efficiently - which gives a cost of £25,000 per job-year if the time taken remains the same (this would also mean the workers' pay would need to be extra subsidised, at least initially). These figures give 40 job years per £million.

The figures for deep retrofit illustrate why we have chosen to limit the number of these projects initially. The figures for the lighter package of measures are however consistent with other economic modelling.

<i>Study/source</i>	<i>Job-years per £million</i>	<i>Notes</i>
Scottish Enterprise (in Forbes etc 2012)	13.3	general construction work
Forbes El-Haram et al 2012	8.5	general construction work
NEF 2020	9	targeted retrofit package
WK for CCC	9.5	targeted retrofit package
<i>DEEP RETROFIT</i>		
Lewis, Palmer, McMahon (PHT/GreenRegister)	27	deep retrofit/ enerPHit
WK for CCC	40	deep retrofit/ enerPHit